WE CLAIM:

1. A self-correcting inertial navigation system, comprising:

inertial sensor means for providing an inertial measurement signal containing inertial position data representing the position of said mobile unit and means responsive to said measurement signal for broadcasting an RF signal containing said inertial position measurement data;

first means for deriving said inertial position data from said RF signal;

second means for effecting phase difference triangulation measurement of said RF signal to provide phase information;

data processing means responsive to said inertial position data from said first means and said phase information from said phase difference triangulation measurement means for employing said phase information to provide an output representing said inertial position data corrected for drift; and

display means for displaying said output of said data processing means.

2. A self-correcting inertial navigation system, comprising;

a mobile unit;

said mobile unit comprising an inertial position sensor and an RF transmitter; and

a base station;

said base station having a receiver responsive to inertial position data from said inertial position sensor broadcast by said RF transmitter; and

phase difference triangulation apparatus responsive to signals from said mobile unit;

a data processor connected to said receiver and said phase difference triangulation apparatus for correcting the inertial position data for drift; and

a corrected measurement display connected to said data processor.

3. A self-correcting inertial navigation system as claimed in claim 2, wherein said receiver and said phase difference triangulation apparatus are both responsive to a common RF signal from said RF transmitter.

4. A self-correcting inertial navigation system, comprising:-

a mobile unit;

said mobile unit having an accelerometer, an RF transmitter and a microcontroller connected between said accelerometer and said RF transmitter; and

a base station;

said base station having a receiver responsive to signals from said RF transmitter, a phase difference triangulation apparatus responsive to signals from said RF transmitter, a data processor responsive to outputs from said receiver and from said phase difference triangulation apparatus to provide an output representing measurement of the position of said mobile unit corrected for drift; and

an output device for indicating said corrected measurement.

5. A position measurement system, comprising:

a mobile unit;

said mobile unit comprising an inertial sensor and a transmitter connected to an output of said inertial sensor for broadcasting a corresponding measurement signal; and

a base station responsive to the measurement signal, said base station including receivers, an interferometer and a processor programmed to obtain inertial position information from the measurement signal and phase difference information from said interferometer and to provide a position measurement based on said inertial position information and corrected by said phase difference information.

6. A position measurement system, comprising:

a mobile unit;

said mobile unit comprising an inertial sensor and a transmitter connected to an output of said inertial sensor;

a base station;

said base station comprising a receiver, a first antenna connected to said receiver, second and third antennas spaced apart from one another, a phase detector responsive to phase differences in said signal at said second and third antennas to provide phase difference information and a processor configured to provide a measurement of the position of said mobile unit based on inertial information received by said receiver from said inertial sensor and to correct said position measurement in accordance with said phase difference information.

7. A method of measuring the position of a mobile unit, which comprises the steps of employing inertial sensing of the position of said mobile unit to provide an inertial sensing data signal, broadcasting said signal, detecting said signal at separate locations, detecting phase differences between said signal at said separate locations, deriving inertial position information from said signal, and outputting a position measurement based on said inertial sensing and corrected by said phase differences.

8. A method of determining the position of a mobile unit, which includes effecting inertial sensing measurement of the position and phase difference triangulation measurement of the position and employing the phase difference triangulation measurement to correct the inertial sensing measurement.